PROJECT NUMBER: 2307
PROJECT TITLE: Flavor Investigation/Nonvolatile Flavor Investigation/Processed Tobacco
PROJECT LEADER: W. R. Raymond
PERIOD COVERED: July, 1988

I. FLAVOR INVESTIGATION:

A. Objective: To provide analytical support for activities related to development and application of flavoring materials.

B. Results:

1. Trim--Stability studies continued of six prototype A/C flavors. PG analyses were completed on Trim casings.

2. ART--Stability studies continued of two ART A/C flavor systems. Fractionation and component identification continued of extracts derived from high petroleum ether solubles ART filler. In addition to common tobacco components, a series of methyl and ethyl esters of long chain aliphatic acids has been identified. Component I.D. by GCMS has been complicated by the significant content of very high boiling components. The possibility of examining these by MS/MS is under discussion with J. Lephardt and N. Jensen.

   Extraction, fractionation and analysis have begun on residues obtained from the SCF holding vessel. Initial GC profiles of hexane and 10% methanol extracts of this material while complex, appear to be considerably less so than those of filler extract fractions. Thus compositional characterization of this material may provide a more accurate idea of the nature of tobacco constituents removed by SCF extraction. Separation and identification studies will continue.

   A flavor absorption study is in progress comparing anethole vapor uptake by ART versus MF Lights filler. If significant differences are noted, absorption studies may be expanded to examine other A/C flavor components.

3. Flavor Retention--Several flavor encapsulates (glassy extrudates) obtained from General Foods have been analyzed for flavor loading. Loadings meet or exceed stated G.F. values. Preliminary subjective evaluations of these materials in plug space and tobacco rod applications indicate promise for further study in cigarettes. Analytical and subjective evaluations of yeast capsules of terpeneless peppermint oil indicate similar promise. Capsule matrices of both glassy extrudate and yeast capsules appear to be subjectively neutral.

4. Miscellaneous--Flavor analyses were completed for Stockton Street Run #3 of reformulated Marlboro. A final report summarizing flavor data for all three runs was issued.

Eight compounded flavors were examined by GC and GCMS for qualification as formulation ingredients. Two were unacceptable.

GC profiles and GCMS component identifications continued with several new natural oils. GC profiles continue to be incorporated in a library file and spectra of newly identified components in a flavor MS library.

II. PROCESSED TOBACCO:

A. Objective: To develop basic and applied knowledge for the purpose of improvement or selective modification of subjective properties of processed tobaccos.

B. Results:

1. Dry Flavor Replacement--It has been arranged with purchasing to obtain samples of native and roasted JONEX from several vendors for analytical comparison with baseline material from Chart. Subjective evaluation will follow of analytically similar samples to select additional sources.

2. ART Stem--After evaluating 3-12% citric acid on CRS from absorber trials, duplicate and modified process trials were conducted with 7.5-8.0% citric acid. Analyses of top, middle and bottom post ART DL filler and CRS showed no obvious transfer of citric acid from absorber to filler. While petroleum ether extractables (PEE) continued to concentrate on the bottom filler layer, no obvious PEE increases were observed in the absorber bed when used for single runs. However, increases were noted when the same absorber bed was used for two consecutive runs (88-167 and 88-168).

3. IS vs ES--POL tests of IS versus ES in Marlboro have been completed and are awaiting final analyses. POL testing of uncased ES from LVL production will be scheduled in August.

4. TMCI ASTA Sheet--After initial subjective evaluations, two sheet trials (10 and 22A) have been selected for large scale evaluations.